

20041204.ba v03\_n733.bam.20041204

>From ???@??? Sat Dec 4 19:57:18 2004 -0600  
Date: Sat, 4 Dec 2004 19:51:53 CST  
From: Old Tube Radios <boatanchors@theporch.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: BOATANCHORS digest 3733  
Message-Id: <20041205015154.92D1E215AEE@srvr1.theporch.com>

BOATANCHORS Digest 3733

Topics covered in this issue include:

- 1) Humor in Mill. Radio Manuals (WW2)  
by =?iso-8859-1?Q?Andr=E9\_Guibert?= <aguibert@sympatico.ca>
- 2) 200 KC Crystal - 5-pin Holder?  
by David Stinson <arc5@ix.netcom.com>
- 3) Re: SP-600 capacitor question  
by "Arden Allen" <gumbear@pacbell.net>
- 4) FW: 30L-1 Question  
by "Gary H. Harmon, Jr." <gharmon@idworld.net>
- 5) Re: SP-600 capacitor question  
by Edward Knobloch <k4pf@juno.com>
- 6) Re:30L-1 Question  
by Edward Knobloch <k4pf@juno.com>
- 7) Need Command Set Plug  
by "JAMES HANLON" <knjhanlon@msn.com>
- 8) Fw: The ARRL Letter, Vol 23, No 47  
by "JAMES HANLON" <knjhanlon@msn.com>
- 9) Re: SP-600 capacitor question  
by "Arden Allen" <gumbear@pacbell.net>
- 10) WTB: Heathkit SA-2040 Antenna Tuner Manual  
by Mike Hardie <mike46@shaw.ca>
- 11) Re: Need Command Set Plug  
by WA5CAB@cs.com
- 12) Racal-Dana Question  
by "Bill Hawkins" <bill@iaxs.net>
- 13) For sale: Range "F" tuning unit for GP-7 xmtr. (40 m ham band)  
by Meyer Gottesman <wrecktech@yahoo.com>
- 14) Re: SP-600 capacitor question  
by "Tom Rauch" <w8ji@contesting.com>

---

Message-ID: <000e01c4d9a9\$a7fb9640\$b856acce@oemcomputer>  
From: =?iso-8859-1?Q?Andr=E9\_Guibert?= <aguibert@sympatico.ca>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: Humor in Mill. Radio Manuals (WW2)  
Date: Fri, 3 Dec 2004 21:32:48 -0500

MIME-Version: 1.0  
Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

Quotes from the WS52 transceiver(Can.) manual  
Never operate the charging set unless the outer compt. doors are open.  
This simple precaution will avoid an inglorious death from carbon monoxide.  
To avoid burns, avoid touching the aerial when on "send".  
Otherwise the equipment is quite harmless and will give you years of  
satisfactory service.  
On the front panel there is mounted quite a good watch.  
Try not to remove it accidentally.  
A table strong enough to support the WS is required.  
If it seems that something more than gravity is working on the set  
have courage, it weighs 255lbs.  
If the P/S pilot light bothers you, simply unscrew the red plastic cover  
and unscrew the bulb.  
Remember other quotes from the manual for a Bren Gun Carrier(Can.)(with a  
WS19, Jack).  
Do not try to check a battery electrolytic level with a match.  
Try it on the gas tank, you will reach a higher altitude sooner.  
After fording some water, apply a light touch on the brakes for a few  
minutes, you won't forget twice.  
Any exemples of other mill. radio manual's humor?  
Andre  
Acres of boatanchorsHi Jerry

-----  
Message-ID: <41B12FF2.1060305@ix.netcom.com>  
Date: Fri, 03 Dec 2004 21:33:06 -0600  
From: David Stinson <arc5@ix.netcom.com>  
MIME-Version: 1.0  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: 200 KC Crystal - 5-pin Holder?  
Content-Type: text/plain; charset=us-ascii; format=flowed  
Content-Transfer-Encoding: 7bit

Someone was just looking for a 200 KC crystal in  
a DC-12, five-pin holder. Would that person  
or someone who knows who it was please email me,  
as one just surfaced in "the Cave."  
73 David S. AB5S

-----  
Message-ID: <001201c4d9df\$18872160\$e47443@KB6NAX>

From: "Arden Allen" <gumbear@pacbell.net>  
To: Old Tube Radios <boatanchors@theporch.com>  
Cc: <boatanchors@theporch.com>, <wa4upv@arrl.net>  
Subject: Re: SP-600 capacitor question  
Date: Sat, 4 Dec 2004 00:41:25 -0800  
MIME-Version: 1.0  
Content-Type: text/plain;  
        charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

Ed concludes:

> ....Therefore, the purists never use ceramic capacitors  
> as coupling capacitors, where the voltage across the capacitor  
> is bound to fluctuate greatly.

The one subject that has the capacity to confuse is this one as Ed (sorry, OM) demonstrates. If I live 1000 years I'll still be rolling my eyes when I'm presented with this kind of evidence. Let's get realistic:

A capacitor is no different than any other piece of nature, it obeys certain laws of physics according to its makeup and construction. Manufacturer's specifications crudely give you clues as to significant characteristics that may effect a circuit design. The operative word is "EFFECT."

The more capacitance you pack into a package the more physical influences, such as temperature variance, affect the capacitance of a capacitor that employs a dielectric with an inherent temperature coefficient of capacitance. That roughly explains why NPO (COG) capacitors are physically larger than Z5U and other "high K" types, particularly in the older disk capacitor models.

Let's take some cases of the use of the notorious Z5U dielectric ceramic capacitor, a so-called "high K" ceramic dielectric capacitor, meaning a dielectric exhibiting a very high dielectric constant yielding a relatively high capacitance per unit volume compared to other dielectric types.

Z5U dielectric has a large voltage dependency of capacitance, or voltage coefficient of capacitance, as Ed correctly explains (again, higher capacitance per unit volume plays against capacitance stability). But who cares about capacitance stability when all you're looking for is a very small device that will effectively shunt power supply rails to suppress voltage variations, particularly in digital circuits where on and off currents produce voltage spikes due to the inductance of circuit wiring?

Suppose a Z5U capacitor is used in an inductance-capacitance tank circuit. As the voltage across the tank cycles through min and max the capacitance will vary thus shifting the resonant frequency of the tank. Phase

distortion will result producing harmonics, a ceramic parametric frequency multiplier in effect. No, Z5U is not good for RF tanks and filters. Great bypass, though.

But then Ed stumbles, unfortunately. Using the example of a "coupling capacitor" he overlooks the function of a coupling capacitor, which is to block a DC voltage from being impressed on a following stage while the AC signal is passed. In order for the AC signal to be passed faithfully the capacitive reactance must be low for the lowest frequency of interest. In an audio circuit reactance does not rise significantly until the RC cutoff frequency is approached, which is usually well below the audible range. In other words, the job of a coupling capacitor is to \*hold\* a constant voltage, its voltage only varies minimally in order to couple all frequencies faithfully. Thus dielectric voltage coefficient has little effect and is therefore the reason ceramic capacitors have been used successfully in many good quality audio products. Of course one must also consider there are various choices in ceramic dielectrics, X7R having less voltage coefficient than Z5U.

So, referring to Scott's 0.1uF capacitor with a SRF (self resonant frequency) of 3MHz we again encounter the physical size enigma. Yep, there's inductance in that ceramic dielectric stuff. It ain't just the lead inductance. But digital circuits run at a lot higher frequency than 3MHz (except for some OM's on the List with older Windows computers - tee hee!). So, with a SRF of 3MHz the caps would be no good for digital circuits, right? Not so fast. Two of those caps in parallel would have a composite SRF of about still 3MHz, paralleling the inductances and series-ing the capacitance yields the same SRF, right?. Or is it the other way 'round? Actually, it's the way you construct things. You end up decimating circuit inductance while lowering capacitive reactance thus multiplying the smearing the SRF all over the map. With a digital circuit board layout that has 20 or more bypass caps the overall SRF, such as can be found, is way up there out of reach of the switching frequencies and their harmonics. A digital circuit board is actually one big low Q high frequency bypass capacitor that the circuitry is built on. Z5U's good!

Now, on to the plastic. Plastic capacitors are not immune to dielectric distortion which causes electrostatic charges to be retained and released slowly producing an effective shift in capacitance with voltage level. Some film formulations are better than others. Audiophoolery claims that nothing will work unless polypropylene capacitors are used throughout. That's fanaticism, not electronics. I have yet to read anything about capacitors in responsible engineering terms that proves that a so-called polypropylene capacitor of XYZ, Inc. manufacture is better than a Whut-Hev-Yoo Electronics equivalent model. Manufacturers, for good reason, avoid chicken wars. In my own experience there is a large variance in dielectric performance between various manufacturer's parts claimed to be "polypropylene." Can you tell the difference? I can. By using a capacitor in a high bit count dual

slope integrating analog to digital converter of good performance measuring its own voltage reference you can obtain a quantitative comparison between capacitors. Yes, you CAN find the fakes!

Arden Allen  
KB6NAX

-----  
From: "Gary H. Harmon, Jr." <gharmon@idworld.net>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: FW: 30L-1 Question  
Date: Sat, 4 Dec 2004 09:14:13 -0600  
MIME-Version: 1.0  
Content-Type: text/plain;  
        charset="us-ascii"  
Content-Transfer-Encoding: 7bit  
Message-Id: <20041204151343.B0C1C215A66@srvr1.theporch.com>

I replaced the 4 HV caps with new ones. All diodes checked good. HV is stable at expected ratings. Linear puts out appropriate wattage BUT when the power is maxed the meter reads below zero. The manual says to minimize the reading to zero and that will indicate maximum output. Thoughts please?

73, gary

=====///  
Gary H. Harmon, Jr. - K5JWK  
6302 Robin Forest  
San Antonio, TX 78239-3218  
210.657.1549-home  
210.884.6926-cell  
210.203.7000-pager  
gharmon@idworld.net

-----  
To: Old Tube Radios <boatanchors@theporch.com>  
Cc: boatanchors@theporch.com  
Date: Sat, 4 Dec 2004 11:23:19 -0500  
Subject: Re: SP-600 capacitor question  
Message-ID: <20041204.112320.332.0.k4pf@juno.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit  
From: Edward Knobloch <k4pf@juno.com>

"Arden Allen" <gumbear@pacbell.net>

wrote up a good article on why disc ceramic capacitors are a poor choice in rf tank circuits, but do fine service as bypass capacitors, where the voltage across them is constant. A large coefficient of change in capacitance with respect to voltage cannot be a problem if the voltage is constant.

He says coupling capacitors also have near constant voltage across them, so disc ceramics can also be a good choice in that service, and chides me for saying that coupling capacitors can have highly variable voltages across them.

I would say that in ham receiver audio equipment, Arden is right, the effect would be slight. A 6V6 beam tetrode output tube might have 20 volts d.c. cathode bias, so the coupling capacitor in its grid circuit should have no more than 20V a.c. peak on top of the, say, 250VDC due to the plate supply of the driver tube. However, if we are talking about high end audio equipment, they may well use a low mu triode output stage, and the peak grid voltage may approach 1/3 of plate voltage for  $\mu = 3$ , so the effect of a disc ceramic coupling capacitor may well be apparent at low audio frequencies to the golden ear guys.

73,  
Ed Knobloch

-----  
To: Old Tube Radios <boatanchors@theporch.com>  
Cc: boatanchors@theporch.com  
Date: Sat, 4 Dec 2004 12:17:20 -0500  
Subject: Re:30L-1 Question  
Message-ID: <20041204.121721.332.1.k4pf@juno.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit  
From: Edward Knobloch <k4pf@juno.com>

Gary H. Harmon, Jr. <gharmon@idworld.net>  
<snip> Linear puts out appropriate wattage BUT when  
> the power is maxed the meter reads below zero.  
>The manual says to minimize  
> the reading to zero and that will indicate maximum output. Thoughts  
> please?  
>

Hi, Gary

The 30L-1 "Tune" meter is an rf voltage comparitor, and is factory

adjusted using a scope and two-tone audio generator on 20 meters. Note that the rf detector diodes CR-17 and CR-18 point in opposite directions. The meter will read zero when the sampled rf voltages are equal. The meter is mechanically offset so that a "zero" reading occurs about 1/3 up scale, so you can find the true null.

If you are using a single tone input to the linear, the power supply voltage will droop more than the same peak output in two-tone (due to higher average power input), and the tune meter zero adjustment point may be slightly different than the factory setting. I would continue using the original tune meter settings if it results in a reasonable peak rf output (say 550W).

For best linearity, old timers running linears without tune meters used to first tune for maximum rf output, and then increase the loading slightly (by reducing the output capacitance) and then redip the plate capacitor. The Collins metering is nice, because it permits tuning up at low power by quickly adjusting the tune and load capacitors, and there is no need to go back and retune at high power. Less strain on the 811A's that way.

73,  
Ed Knobloch

-----  
Message-ID: <BAY4-DAV6099A642162456195A9A6A0B20@phx.gbl>  
From: "JAMES HANLON" <knjhanlon@msn.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Subject: Need Command Set Plug  
Date: Sat, 4 Dec 2004 10:31:09 -0700  
MIME-Version: 1.0  
Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

Guys,

I just acquired a CBY 52232, Navy Command Set Transmitter covering 2.1 to 3 mc that is in pretty decent shape. It is missing the 1625's and strangely their plate cap clips and leads, the black crackle paint is flaking off the cover, the screws holding the cover and bottom plate were missing, and the plastic in the window covering the loading coil has shrunk; but other than that it appears to be in pristine shape. The relays, calibration crystal, output connector, and power connector on the back are all there. It was built by Aircraft Radio Corporation on a June 19, 1940 contract date.

Anyway, I would like to reset the padder capacitors on the vfo and the amplifier so that it covers down to 1.8 mc and put it on 160. I presume this can be done since I've done it many times on the BC457 and CBY 52209 to pull them down from 4.0 to 5.3 mc into 80 meters and on the BC458 to pull it from 5.3 to 7 mc into 40 meters.

Since it is in such nice shape, I'd like to make contact to the original power plug on back (six sockets on the outer circle and one in the center) rather than to punch that socket out and replace it with an octal socket or to solder wires into the original socket like we used to in the "good old days."

Can anybody direct me to a source of a plug that would fit this socket?

Thanks and 73,

Jim Hanlon, W8KGI

-----  
Message-ID: <BAY4-DAV94492B0EA56CC875559B2A0B20@phx.gbl>

From: "JAMES HANLON" <knjhanlon@msn.com>

To: Old Tube Radios <boatanchors@theporch.com>

Subject: Fw: The ARRL Letter, Vol 23, No 47

Date: Sat, 4 Dec 2004 11:04:17 -0700

MIME-Version: 1.0

Content-Type: text/plain;  
charset="iso-8859-1"

Content-Transfer-Encoding: 8bit

Some good news from the ARRL Newsletter.

Jim

>

> ==>FCC DENIES AM, SSB BANDWIDTH PETITION

>

> The FCC has turned down a Petition for Rule Making that sought to  
> establish specific bandwidth standards for full-carrier AM and SSB Amateur  
> Radio emissions. Michael Lonneke, W0YR, and Melvin Ladisky, W6FDR, filed  
> the petition, designated RM-10740, on May 27, 2003. The FCC said a  
> majority of the approximately 160 members of the amateur community who  
> commented on the petition opposed the concept.

>

> "We conclude that petitioners' request for an amendment of our rules is  
> inconsistent with the Commission's objective of encouraging the  
> experimental aspects of the Amateur Radio service," wrote Public Safety  
> and Critical Infrastructure Division Chief Michael J. Wilhelm, WS6BR. The



> FCC's Wireless Telecommunications Bureau released the Order November 24.  
> "The petition also fails to demonstrate that a deviation from the  
> Commission's longstanding practice of allowing operating flexibility  
> within the Amateur Service community is either warranted or necessary."  
>  
> Lonneke and Ladisky had asked the FCC to "remove the ambiguity" in Part  
> 97--specifically §97.307(a) and (b)--and they referenced Enforcement  
> Bureau letters sent to amateurs alleging overly wide SSB  
> signals--sometimes called "Enhanced Single Sideband." Additionally, they  
> said, some contesters purposely adjust their transmitters to exceed what  
> they called "the de facto SSB signal width of approximately 3 kHz" to gain  
> "elbow room" during contests.  
>  
> On HF frequencies below 28.8 MHz, the petition recommended a maximum 2.8  
> kHz bandwidth SSB (J3E) emissions and a maximum 5.6 kHz bandwidth for AM  
> (A3E) emissions.  
>  
> Asserting that most radio amateurs "operate in a manner consistent with  
> the basic purpose of the Amateur Service," the FCC said its existing rules  
> are "adequate to address any noncompliant practices by amateur operators."  
> Current FCC rules require that amateur transmissions not occupy "more  
> bandwidth than necessary for the information rate and emission type being  
> transmitted, in accordance with good amateur practice," and that emissions  
> outside the necessary bandwidth not interfere with operations on adjacent  
> frequencies. The FCC also said the petitioners failed to show that there  
> is "a particular problem" with stations using AM.  
>  
> The Order said the FCC's Enforcement Bureau will continue to monitor  
> through its complaint process "nonconforming activities" of operators who  
> fail to abide by its rules. "In instances of willful and malicious  
> interference, the Enforcement Bureau will not hesitate to take appropriate  
> action," Wilhelm pledged.  
>

-----  
Message-ID: <002b01c4da2c\$12ff8b90\$a3e47443@KB6NAX>

From: "Arden Allen" <gumbear@pacbell.net>

To: Old Tube Radios <boatanchors@theporch.com>

Cc: <boatanchors@theporch.com>

Subject: Re: SP-600 capacitor question

Date: Sat, 4 Dec 2004 09:58:28 -0800

MIME-Version: 1.0

Content-Type: text/plain;  
charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

> .....However, if we are talking  
> about high end audio equipment, they may well use a low mu triode

output stage, and the peak grid voltage may approach 1/3 of plate voltage for  $\mu = 3$ , so the effect of a disc ceramic coupling capacitor may well be apparent at low audio frequencies to the golden ear guys.

Ed, I think you are talking about how much charge on the coupling capacitor gets "pushed" by the plate-grid capacitance multiplication effect caused by the tube's amplification factor. This is of much greater significance in triodes than pentodes and that is why capacitive coupling to a triode with a large plate-grid capacitance and large plate voltage swing can cause a significant alteration of coupling capacitor voltage and thus allow capacitor dielectric absorption time constant to induce distortion. Also, if grid current is allowed to flow the coupling capacitor charge will be shifted. Capacitor behavior is just one of many problems associated with lean, simplistic designs. I've heard it more often said that the "tube sound" is what is being sought after. In other words some kinds of distortion are more acceptable than others. Engineering analysis will generally reveal that difficulties cannot be greatly reduced but performance can be greatly enhanced by learning how to live with difficulties.

Arden Allen  
KB6NAX

-----  
Date: Sat, 04 Dec 2004 10:20:55 -0800  
From: Mike Hardie <mike46@shaw.ca>  
Subject: WTB: Heathkit SA-2040 Antenna Tuner Manual  
To: Old Tube Radios <boatanchors@theporch.com>  
Message-id: <000001c4da2e\$00014310\$6601a8c0@usern1yudx31pt>  
MIME-version: 1.0  
Content-type: multipart/alternative;  
boundary="-----=\_NextPart\_000\_0001\_01C4D9EA.F1DE0310"

This is a multi-part message in MIME format.

-----=\_NextPart\_000\_0001\_01C4D9EA.F1DE0310  
Content-Type: text/plain;  
charset="Windows-1252"  
Content-Transfer-Encoding: quoted-printable

Does anyone have a manual for sale? What I=92m really after is the tuning chart to know where to start.  
Mike VE7MMH

---  
Outgoing mail is certified Virus Free.  
Checked by AVG anti-virus system (<http://www.grisoft.com>).  
Version: 6.0.803 / Virus Database: 546 - Release Date: 11/30/2004  
=20

-----=\_NextPart\_000\_0001\_01C4D9EA.F1DE0310  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

\* \* \* \* \*  
\* ---REMAINDER OF MESSAGE TRUNCATED--- \*  
\* This post contains a forbidden message format \*  
\* (such as an attached file, a v-card, HTML formatting) \*  
\* Mail Lists at theporch.com only accept PLAIN TEXT \*  
\* If your postings display this message your mail program \*  
\* is not set to send PLAIN TEXT ONLY and needs adjusting \*  
\* \* \* \* \*

-----=\_NextPart\_000\_0001\_01C4D9EA.F1DE0310--

-----  
From: WA5CAB@cs.com  
Message-ID: <65.39d245c0.2ee36465@cs.com>  
Date: Sat, 4 Dec 2004 14:05:09 EST  
Subject: Re: Need Command Set Plug  
To: Old Tube Radios <boatanchors@theporch.com>  
MIME-Version: 1.0  
Content-Type: multipart/alternative;  
boundary="part1\_65.39d245c0.2ee36465\_boundary"

--part1\_65.39d245c0.2ee36465\_boundary  
Content-Type: text/plain; charset="US-ASCII"  
Content-Transfer-Encoding: 7bit

Jim,

There doesn't appear to have ever been a male cable connector made specifically for this purpose. The Depot setup that I saw many years ago had adaptors made out of the rear few inches of what had probably been a single rack. You could of course salvage a 7-pin male from any of the receiver or transmitter racks (except for the AN/ARC-5 transmitter racks - different connector) but these are in pretty short supply today and you wouldn't want to junk a good rack just for a connector.

Unless someone has an already junked out rack, another possible source is the male connector in the front of all of the receivers, the one that the remote or local control adaptors plug into. There are certainly a lot of junked out receivers around from which the little box might be salvaged. Just be sure that it isn't one that someone already soldered wires to. Desoldering the mini-banana pins such that the leaves are free at the bottom is somewhat difficult.

Incidentally, I don't know of a similar source for a 7-pin male connector that will fit the AN/ARC-5 transmitters. It has a slightly larger pin circle diameter. However, each receiver has three 6-pin connectors that the IF transformers plug onto. These do fit, but are of course missing the center pin. Swedge or hollow rivet type mini banana pins are still available, or were only a few years ago, from Pomona. The special hollow rivet setting tool is available from McMaster, although they are a bit proud of it (about \$43 last time I bought one). Pomona might also carry the solder lug but I didn't check as I was buying the pins for use in BC-611's.

In a message dated 12/4/2004 11:34:13 AM Central Standard Time,  
knjhanlon@msn.com writes:

> Since it is in such nice shape, I'd like to make contact to the original  
> power plug on back (six sockets on the outer circle and one in the center)  
> rather than to punch that socket out and replace it with an octal socket or  
> to solder wires into the original socket like we used to in the "good old  
> days."  
>  
> Can anybody direct me to a source of a plug that would fit this socket?

Robert & Susan Downs - Houston  
<<http://www.wa5cab.com>> (Web Store)  
<[wa5cab@cs.com](mailto:wa5cab@cs.com)> (Primary email)  
<[wa5cab@houston.rr.com](mailto:wa5cab@houston.rr.com)> (Backup email)

--part1\_65.39d245c0.2ee36465\_boundary  
Content-Type: text/plain; charset=us-ascii  
Content-Transfer-Encoding: 7bit

```
*****
*      ---REMAINDER OF MESSAGE TRUNCATED---      *
*      This post contains a forbidden message format      *
*      (such as an attached file, a v-card, HTML formatting) *
*      Mail Lists at theporch.com only accept PLAIN TEXT      *
*      If your postings display this message your mail program *
*      is not set to send PLAIN TEXT ONLY and needs adjusting *
*****
```

--part1\_65.39d245c0.2ee36465\_boundary--

-----  
From: "Bill Hawkins" <[bill@iaxs.net](mailto:bill@iaxs.net)>  
To: Old Tube Radios <[boatanchors@theporch.com](mailto:boatanchors@theporch.com)>  
Subject: Racal-Dana Question  
Date: Sat, 4 Dec 2004 13:57:11 -0600  
Message-ID: <000801c4da3b\$719c2280\$0500a8c0@darius.domain.actds1tmp>  
MIME-Version: 1.0

Content-Type: text/plain;  
charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

There's no bottles of vacuum in this instrument, although everything is a thermionic emitter, to some degree.

Have a DRMO Racal-Dana 1995, and want to use the GPIB port. Alas, the military had its own way of doing GPIB that confounds a NI interface card. Model 1992 devices have a two position jumper on the GPIB board for military or civilian use. The 1995 is a one piece board with no jumpers near the GPIB section. There are other jumpers but no labels, just coordinates.

Please respond off list if you have any idea where the jumper for GPIB is located.

Many thanks,  
Bill Hawkins

-----  
Message-ID: <20041204214817.36480.qmail@web51008.mail.yahoo.com>  
Date: Sat, 4 Dec 2004 13:48:17 -0800 (PST)  
From: Meyer Gottesman <wrecktech@yahoo.com>  
Subject: For sale: Range "F" tuning unit for GP-7 xmtr. (40 m ham band)  
To: Old Tube Radios <boatanchors@theporch.com>  
MIME-Version: 1.0  
Content-Type: text/plain; charset=us-ascii

For sale:

One "rare bird"! Range "F" plug-in tuning unit for Navy GP-7 xmtr. (WW II). Covers entire 40 meter ham band. In perfect condition.

Sacrifice: \$50.00 firm plus shipping/packing FOB Warner Robins, Georgia, USA.

Personal checks welcome and do not cause a delay.

Tel: (478)741-1710 in Macon, GA.

73,

Meyer Gottesman, W6GIV

-----  
Do you Yahoo!?  
The all-new My Yahoo! - What will yours do?  
<http://my.yahoo.com>

-----  
Message-ID: <003c01c4da6b\$9433e000\$6601a8c0@akorn.net>  
From: "Tom Rauch" <w8ji@contesting.com>  
To: Old Tube Radios <boatanchors@theporch.com>  
Cc: <boatanchors@theporch.com>  
Subject: Re: SP-600 capacitor question  
Date: Sat, 4 Dec 2004 20:41:45 -0500  
MIME-Version: 1.0  
Content-Type: text/plain;  
        charset="iso-8859-1"  
Content-Transfer-Encoding: 7bit

> I would say that in ham receiver audio equipment, Arden is  
right,  
> the effect would be slight. A 6V6 beam tetrode output  
tube might have  
> 20 volts d.c. cathode bias, so the coupling capacitor in  
its grid circuit  
> should have no more than 20V a.c. peak on top of the, say,  
250VDC  
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we are talking  
> about high end audio equipment, they may well use a low mu  
triode  
> output stage, and the peak grid voltage may approach 1/3  
of plate voltage  
> for  $\mu = 3$ , so the effect of a disc ceramic coupling  
capacitor  
> may well be apparent at low audio frequencies to the  
golden ear guys.

Ed and Arden,

I think everyone is making a very simple system far too  
complicated.

The voltage ACROSS the capacitor is simply the current  
flowing into the grid resistance of the following stage  
times the reactance of the capacitor, assuming the tube is  
not going into grid current. The load impedance is not a  
dynamic system that varies with time.

The peak current would depend on the peak voltage across that grid resistance, and that tells us everything we need to know. The peak delta in capacitor voltage would be just current times reactance. Doesn't matter if the anode voltage is varying a million volts or a millivolt, the delta in the capacitor dielectric depends on the current through the cap and the reactance. You could pick that apart with a more detailed analysis of the voltage slope (and current) at various points of time and obtain the peak voltage change with a complex waveform.

The dc bias is steady state and doesn't do anything non-linear, it is simply the time varying voltage at the anode driving the reactance of the capacitor in series with the grid resistance that sets the time-varying stress on the capacitor dielectric. If you are dropping an appreciable portion of that time-varying anode voltage as a time-varying voltage across the coupling cap you have bigger problems than the fractional percent change in capacitance that you would never hear anyway except perhaps in a very wild imagination.

Say you had a voltage drop CHANGE across the capacitor of 12.5 volts out of the time-varying anode voltage delta of 25 volts with a 250 v steady state anode voltage and zero volts on the grid. Now you have a dielectric voltage stress change of 12.5 volts out of about 250 volts of steady bias. Not a large percentage of change in the stress of the dielectric!!! At the same time you have 6dB of gain loss in that capacitor and a heap of phase shift caused by the capacitor being too small. Clearly the ONLY way the capacitance change could even become an issue is when the capacitor is too damn small anyway and causing other more major problems.

It has absolutely NOTHING to do with the driver being a tetrode, triode, or CK722 transistor except as that device's properties affects the time-varying voltage across the cap by changing the current through the cap.

You don't even need to do a Chaffee analysis because the tubes are operating in a linear mode. If they aren't once again the capacitor is the last thing you need to look at.

My opinion is this is all a bunch of frantic arm-waving by people who think oxygen free copper sounds better than zip cord in speaker leads.

73 Tom

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End of BOATANCHORS Digest 3733

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